# General

## Guideline Title

Best evidence statement (BESt). Parent-infant interaction and non-organic failure to thrive.

## Bibliographic Source(s)

Cincinnati Children's Hospital Medical Center. Best evidence statement (BESt). Parent-infant interaction and non-organic failure to thrive. Cincinnati (OH): Cincinnati Children's Hospital Medical Center; 2011 Jun 28. 7 p. [27 references]

## Guideline Status

This is the current release of the guideline.

# Recommendations

## Major Recommendations

The strength of the recommendation (strongly recommended, recommended, or no recommendation) and the quality of the evidence (1a-5b) are defined at the end of the "Major Recommendations" field.

1. It is recommended that caregiver-child attachment/bonding be evaluated to determine if there are concerns that are impacting the feeding and developmental interaction (Coolbear & Benoit, 1999 [3a]; Ward, Lee, & Lipper, 2000 [3a]; Benoit et al., 1997 [4a]).
   Note: There are distinct differences in attachment/bonding between mothers and children with failure to thrive (Coolbear & Benoit, 1999 [3a]; Ward, Lee, & Lipper, 2000 [3a]; Benoit et al., 1997 [4a]) and these differences in attachment were related to their child's nutritional status (Ward, Lee, & Lipper, 2000 [3a]).

   Level of evidence for attachment: moderate.

2. It is recommended that caregiver-infant interaction be evaluated in infants and children admitted with non-organic failure to thrive. The findings from this additional evaluation will serve to guide additional supports the caregiver-child dyad might benefit from to support overall feeding interactions (Coolbear & Benoit, 1999 [3a]; Leitch, 1999 [3a]; Lindberg et al., 1996 [3a]; Wolke, Skuse, & Mathisen, 1990 [3a]; Ammaniti et al., 2004 [4a]; Feldman et al., 2004 [4a]; Hagekull, Bohlin, & Rydell, 1997 [4a]; Reilly et al., 1999 [4a]; Jung et al., 2007 [4a]; Drotar et al., 1990 [4a]).
   Note: There were significant differences found in maternal-child interactions in groups with children with failure to thrive and feeding disorders (Coolbear & Benoit, 1999 [3a]; Leitch, 1999 [3a]; Lindberg et al., 1996 [3a]; Wolke, Skuse, & Mathisen, 1990 [3a]; Ammaniti et al., 2004 [4a]; Feldman et al., 2004 [4a]; Hagekull, Bohlin, & Rydell, 1997 [4a]; Reilly et al., 1999 [4a]; Jung et al., 2007 [4a]; Drotar et al., 1990 [4a]). These differences were associated with reduced social-emotional and cognitive growth fostering behaviors and were also associated with differences in feeding.

Level of evidence for caregiver-child interaction: moderate.

3. It is recommended that oral-motor/feeding skills and caregiver-infant behaviors during feeding interaction be evaluated (Ramsay et al., 2002 [3a]; Wright, Parkinson, & Drewett, 2006 [4a]; Ammaniti et al., 2004 [4a]; Wright & Birks, 2000 [3a]; Ramsay, Gisel, & Boutry, 1993 [4a]; Mathisen et al., 1989 [4a]; Raynor & Rudolf, 1996 [4b]).
   Note: There are differences in feeding behaviors in children with failure to thrive and maternal response to feeding behaviors that may perpetuate difficulties with weight gain and caregiver-child interaction (Ramsay et al., 2002 [3a]; Wright, Parkinson, & Drewett, 2006 [4a]; Ammaniti et al., 2004 [4a]; Wright & Birks, 2000 [3a]; Ramsay, Gisel, & Bountry, 1993 [4a]; Mathisen et al., 1989 [4a]; Raynor & Rudolf, 1996 [4b]).

   Level of evidence for feeding behaviors: moderate.

4. It is recommended that caregiver education regarding child cues, behavioral states, state modulation, and feeding be incorporated into plan of care with infants admitted with non-organic failure to thrive (Leitch, 1999 [3a]; Jung et al., 2007 [4a]).
   Note: Specific education regarding child cues, behavioral states, state modulation, and feeding results in increased sensitivity to cues and overall feeding and interaction (Leitch, 1999 [3a]; Jung et al., 2007 [4a]).

   Level of evidence for caregiver education: moderate.

Definitions:

Table of Evidence Levels

| Quality Level | Definition |
|---|---|
| 1a† or 1b† | Systematic review, meta-analysis, or meta-synthesis of multiple studies |
| 2a or 2b | Best study design for domain |
| 3a or 3b | Fair study design for domain |
| 4a or 4b | Weak study design for domain |
| 5 or 5a or 5b | Other: General review, expert opinion, case report, consensus report, or guideline |

†a = good quality study; b = lesser quality study

Table of Recommendation Strength

| Strength | Definition |
|---|---|
| "Strongly recommended" | There is consensus that benefits clearly outweigh risks and burdens (or vice-versa for negative recommendations). |
| "Recommended" | There is consensus that benefits are closely balanced with risks and burdens. |
| No recommendation made | There is lack of consensus to direct development of a recommendation. |
| Dimensions: In determining the strength of a recommendation, the development group makes a considered judgment in a consensus process that incorporates critically appraised evidence, clinical experience, and other dimensions as listed below. | |
| 1. Grade of the body of evidence (see note above)<br>2. Safety/harm<br>3. Health benefit to patient (direct benefit)<br>4. Burden to patient of adherence to recommendation (cost, hassle, discomfort, pain, motivation, ability to adhere, time)<br>5. Cost-effectiveness to healthcare system (balance of cost/savings of resources, staff time, and supplies based on published studies or onsite analysis)<br>6. Directness (the extent to which the body of evidence directly answers the clinical question [population/problem, intervention, comparison, outcome]) | |

| Strength | Definition |
| --- | --- |
| 7. Impact on morbidity/mortality or quality of life | |

## Clinical Algorithm(s)

None provided

# Scope

## Disease/Condition(s)

Non-organic failure to thrive

## Guideline Category

Management

## Clinical Specialty

Family Practice

Nutrition

Pediatrics

## Intended Users

Advanced Practice Nurses

Dietitians

Nurses

Occupational Therapists

Physician Assistants

Physicians

Social Workers

Speech-Language Pathologists

## Guideline Objective(s)

To evaluate, among formula-fed infants admitted for inpatient hospitalization with non-organic failure to thrive and their primary caregivers, if focused parent-child interaction education in addition to standard care compared with standard care improves weight gain within 4-8 weeks

## Target Population

Formula-fed infants (birth to 1 year) with non-organic failure to thrive and their primary caregivers

## Interventions and Practices Considered

1. Evaluation of caregiver-child attachment/bonding for concerns that may impact feeding and developmental interaction
2. Evaluation of caregiver-child attachment/bonding in infants and children admitted with non-organic failure to thrive
3. Evaluation of oral-motor/feeding skills and caregiver-infant behaviors during feeding interaction
4. Caregiver education regarding child cues, behavioral states, state modulation, and feeding

## Major Outcomes Considered

Weight gain

# Methodology

## Methods Used to Collect/Select the Evidence

Searches of Electronic Databases

## Description of Methods Used to Collect/Select the Evidence

Search Strategy

- Keywords: Parent-infant interaction, infant feeding, parent education, failure to thrive, non-organic failure to thrive, feeding strategy, feeding practices, feeding technique, management of failure to thrive
- Databases: Medline, CINAHL, PubMed, Cochrane, Google Scholar
    - Limits: English language
    - Search date: August, 2010 through February 15, 2011.
- National Association of Children's Hospitals and Related Institutions (NACRHI) electronic mailing list.

## Number of Source Documents

Not stated

## Methods Used to Assess the Quality and Strength of the Evidence

Weighting According to a Rating Scheme (Scheme Given)

## Rating Scheme for the Strength of the Evidence

Table of Evidence Levels

| Quality Level | Definition |
|---|---|
| 1a† or 1b† | Systematic review, meta-analysis, or meta-synthesis of multiple studies |
| 2a or 2b | Best study design for domain |
| 3a or 3b | Fair study design for domain |
| 4a or 4b | Weak study design for domain |
| 5 or 5a or 5b | Other: General review, expert opinion, case report, consensus report, or guideline |

†a = good quality study; b = lesser quality study

## Methods Used to Analyze the Evidence

Systematic Review

## Description of the Methods Used to Analyze the Evidence

Not stated

## Methods Used to Formulate the Recommendations

Expert Consensus

## Description of Methods Used to Formulate the Recommendations

Not stated

## Rating Scheme for the Strength of the Recommendations

Table of Recommendation Strength

| Strength | Definition |
|---|---|
| "Strongly recommended" | There is consensus that benefits clearly outweigh risks and burdens (or vice-versa for negative recommendations). |
| "Recommended" | There is consensus that benefits are closely balanced with risks and burdens. |
| No recommendation made | There is lack of consensus to direct development of a recommendation. |
| Dimensions: In determining the strength of a recommendation, the development group makes a considered judgment in a consensus process that incorporates critically appraised evidence, clinical experience, and other dimensions as listed below. | |
| 1. Grade of the body of evidence (see note above)<br>2. Safety/harm<br>3. Health benefit to patient (direct benefit)<br>4. Burden to patient of adherence to recommendation (cost, hassle, discomfort, pain, motivation, ability to adhere, time)<br>5. Cost-effectiveness to healthcare system (balance of cost/savings of resources, staff time, and supplies based on published studies or onsite analysis)<br>6. Directness (the extent to which the body of evidence directly answers the clinical question [population/problem, intervention, comparison, outcome])<br>7. Impact on morbidity/mortality or quality of life | |

## Cost Analysis

A formal cost analysis was not performed and published cost analyses were not reviewed.

## Method of Guideline Validation

Peer Review

## Description of Method of Guideline Validation

Reviewed against quality criteria by 2 independent reviewers.

# Evidence Supporting the Recommendations

## References Supporting the Recommendations


Ammaniti M, Ambruzzi AM, Lucarelli L, Cimino S, D'Olimpio F. Malnutrition and dysfunctional mother-child feeding interactions: clinical assessment and research implications. J Am Coll Nutr. 2004 Jun;23(3):259-71. PubMed

Benoit D, Zeanah CH, Parker CH, Nicholson E, Coolbear J. Working model of the child interview: infant clinical status related to maternal perceptions. Infant Ment Health J. 1997;18(10):107-21.

Coolbear J, Benoit D. Failure to thrive: risk for clinical disturbance of attachment?. Infant Ment Health J. 1999;20(1):87-104.

Drotar D, Eckerle D, Satola J, Pallotta J, Wyatt B. Maternal interactional behavior with nonorganic failure-to-thrive infants: a case comparison study. Child Abuse Negl. 1990;14(1):41-51. PubMed

Feldman R, Keren M, Gross-Rozval O, Tyano S. Mother-Child touch patterns in infant feeding disorders: relation to maternal, child, and environmental factors. J Am Acad Child Adolesc Psychiatry. 2004 Sep;43(9):1089-97. PubMed

Hagekull B, Bohlin G, Rydell A. Maternal sensitivity, infant temperament, and the development of early feeding problems. Infant Ment Health J. 1997;118(1):92-106.

Jung V, Short R, Letourneau N, Andrews D. Interventions with depressed mothers and their infants: modifying interactive behaviours. J Affect Disord. 2007 Mar;98(3):199-205. PubMed

Leitch DB. Mother-infant interaction: achieving synchrony. Nurs Res. 1999 Jan-Feb;48(1):55-8. PubMed

Lindberg L, Bohlin G, Hagekull B, Palmerus K. Interactions between mothers and infants showing food refusal. Infant Ment Health J. 1996;17(4):334-47.

Mathisen B, Skuse D, Wolke D, Reilly S. Oral-motor dysfunction and failure to thrive among inner-city infants. Dev Med Child Neurol. 1989 Jun;31(3):293-302. PubMed

Ramsay M, Gisel EG, Boutry M. Non-organic failure to thrive: growth failure secondary to feeding-skills disorder. Dev Med Child Neurol. 1993 Apr;35(4):285-97. PubMed

Ramsay M, Gisel EG, McCusker J, Bellavance F, Platt R. Infant sucking ability, non-organic failure to thrive, maternal characteristics, and feeding practices: a prospective cohort study. Dev Med Child Neurol. 2002 Jun;44(6):405-14. PubMed

Raynor P, Rudolf MC. What do we know about children who fail to thrive. Child Care Health Dev. 1996 Jul;22(4):241-50. PubMed

Reilly SM, Skuse DH, Wolke D, Stevenson J. Oral-motor dysfunction in children who fail to thrive: organic or non-organic. Dev Med Child Neurol. 1999 Feb;41(2):115-22. PubMed

Ward MJ, Lee SS, Lipper EG. Failure-to-thrive is associated with disorganized infant-mother attachment and unresolved maternal attachment. Infant Ment Health J. 2000;21(6):428-42.

Wolke D, Skuse D, Mathisen B. Behavioral style in failure-to-thrive infants: a preliminary communication. J Pediatr Psychol. 1990 Apr;15(2):237-54. PubMed

Wright C, Birks E. Risk factors for failure to thrive: a population-based survey. Child Care Health Dev. 2000 Jan;26(1):5-16. PubMed

Wright CM, Parkinson KN, Drewett RF. How does maternal and child feeding behavior relate to weight gain and failure to thrive? Data from a prospective birth cohort. Pediatrics. 2006 Apr;117(4):1262-9. PubMed

### Type of Evidence Supporting the Recommendations

The type of supporting evidence is identified and graded for each recommendation (see the "Major Recommendations" field).

## Benefits/Harms of Implementing the Guideline Recommendations

### Potential Benefits

Admission to an inpatient unit is costly. Incorporating caregiver education to increase feeding interaction may improve caregiver-infant interaction and overall weight gain. In addition, there may be a long term benefit to this education including increased attachment behaviors that support appropriate development.

### Potential Harms

Not stated

## Qualifying Statements

### Qualifying Statements

This Best Evidence Statement addresses only key points of care for the target population; it is not intended to be a comprehensive practice guideline. These recommendations result from review of literature and practices current at the time of their formulation. This Best Evidence Statement does not preclude using care modalities proven efficacious in studies published subsequent to the current revision of this document. This document is not intended to impose standards of care preventing selective variances from the recommendations to meet the specific and unique requirements of individual patients. Adherence to this Statement is voluntary. The clinician in light of the individual circumstances presented by the patient must make the ultimate judgment regarding the priority of any specific procedure.

# Implementation of the Guideline

## Description of Implementation Strategy

An implementation strategy was not provided.

# Institute of Medicine (IOM) National Healthcare Quality Report Categories

## IOM Care Need

Getting Better

## IOM Domain

Effectiveness

# Identifying Information and Availability

## Bibliographic Source(s)

Cincinnati Children's Hospital Medical Center. Best evidence statement (BESt). Parent-infant interaction and non-organic failure to thrive. Cincinnati (OH): Cincinnati Children's Hospital Medical Center; 2011 Jun 28. 7 p. [27 references]

## Adaptation

Not applicable: The guideline was not adapted from another source.

## Date Released

2011 Jun 28

## Guideline Developer(s)

Cincinnati Children's Hospital Medical Center - Hospital/Medical Center

## Source(s) of Funding

Cincinnati Children's Hospital Medical Center

## Guideline Committee

Not stated

## Composition of Group That Authored the Guideline

*Group/Team Leader*: Brenda K. Thompson, MA, CCC-SLP, Speech Pathologist II, Division of Speech-Language Pathology

*Support Personnel*: Mary Ellen Meier, MSN, RN, CPN, EBP Mentor, Center for Professional Excellence in Research and Evidence Based Practice

## Financial Disclosures/Conflicts of Interest

Not stated

## Guideline Status

This is the current release of the guideline.

## Guideline Availability

Electronic copies: Available from the Cincinnati Children's Hospital Medical Center .

Print copies: For information regarding the full-text guideline, print copies, or evidence-based practice support services contact the Cincinnati Children's Hospital Medical Center Health James M. Anderson Center for Health Systems Excellence at EBDMInfo@cchmc.org.

## Availability of Companion Documents

The following are available:

- Judging the strength of a recommendation. Cincinnati (OH): Cincinnati Children's Hospital Medical Center; 2008 Jan. 1 p. Available from the Cincinnati Children's Hospital Medical Center .
- Grading a body of evidence to answer a clinical question. Cincinnati (OH): Cincinnati Children's Hospital Medical Center; 1 p. Available from the Cincinnati Children's Hospital Medical Center .
- Table of evidence levels. Cincinnati (OH): Cincinnati Children's Hospital Medical Center; 2008 Feb 29. 1 p. Available from the Cincinnati Children's Hospital Medical Center .

Print copies: For information regarding the full-text guideline, print copies, or evidence-based practice support services contact the Cincinnati Children's Hospital Medical Center Health James M. Anderson Center for Health Systems Excellence at EBDMInfo@cchmc.org.

## Patient Resources

None available

## NGC Status

This NGC summary was completed by ECRI Institute on November 18, 2011.

## Copyright Statement

- Copies may be provided to anyone involved in the organization's process for developing and implementing evidence based care
- Hyperlinks to the CCHMC website may be placed on the organization's website
- The BESt may be adopted or adapted for use within the organization, provided that CCHMC receives appropriate attribution on all written or electronic documents; and
- Copies may be provided to patients and the clinicians who manage their care

Notification of CCHMC at EBDMInfo@cchmc.org for any BESt adopted, adapted, implemented or hyperlinked by the organization is appreciated.

# Disclaimer

## NGC Disclaimer

The National Guideline Clearinghouseâ„¢ (NGC) does not develop, produce, approve, or endorse the guidelines represented on this site.

All guidelines summarized by NGC and hosted on our site are produced under the auspices of medical specialty societies, relevant professional associations, public or private organizations, other government agencies, health care organizations or plans, and similar entities.

Guidelines represented on the NGC Web site are submitted by guideline developers, and are screened solely to determine that they meet the NGC Inclusion Criteria which may be found at http://www.guideline.gov/about/inclusion-criteria.aspx.

NGC, AHRQ, and its contractor ECRI Institute make no warranties concerning the content or clinical efficacy or effectiveness of the clinical practice guidelines and related materials represented on this site. Moreover, the views and opinions of developers or authors of guidelines represented on this site do not necessarily state or reflect those of NGC, AHRQ, or its contractor ECRI Institute, and inclusion or hosting of guidelines in NGC may not be used for advertising or commercial endorsement purposes.

Readers with questions regarding guideline content are directed to contact the guideline developer.